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The Link between Land, Environment, Employment, and Conflict in Burundi

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The Link between Land, Environment, Employment, and Conflict in Burundi

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The objective of the program is to help USAID/REDSO establish an agenda for promoting economic reform and growth as well as financial transparency in the government of Burundi. The Nathan team has investigated—and developed recommendations to address—major economic issues and opportunities that Burundi is facing, emphasizing the appropriate role of the government in the national economy and anticorruption and transparency initiatives. The assessments and recommendations will be presented to government, civil society, and business actors in Burundi, as well as donor representatives, at a conference in Bujumbura in May 2006, and through related information programs.

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Final reports for the Burundi Economic Reform and Financial Transparency Assessment Program will be made available in both English and French at www.nathaninc.com. For further information or printed copies of these publications, please contact

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Executive Summary

In Burundi, subsistence crop production has grown more slowly than the population while export crop production has fallen. The obvious immediate cause is the civil conflict, but the main structural constraint on agricultural production is low productivity stemming from the high density of the rural population.

The environment has seriously deteriorated, especially during the past decade. Decision-makers and rural populations must recognize the relationship between the degradation of the environment and low agricultural productivity in order to take actions that protect the environment while raising productivity.

Because of the lack of cultivable land, rural unemployment and underemployment are high. Those affected are vulnerable to manipulation by outsiders with a vested interest in generating and prolonging civil conflict. Conflict in Burundi is typically presented as purely ethnic in its motivation, but scarce and poorly distributed resources lead to a tiny elite appropriating public resources and cash crops, and the rural population struggling for subsistence land. Here, too, the relationship between conflict and land must be recognized if effective and equitable policies are to be developed.

Currently, the vicious circle of land scarcity–environmental degradation–conflict has led to a stalemate across the economic, social, and physical spectrums. The challenges are interlocking and daunting: manage conflict, increase agricultural productivity, develop income-generating activities in agriculture and elsewhere, find ways to reduce population pressure on the land, protect the environment, and accommodate the returning refugees and displaced persons.

Breaking this stalemate is very difficult but not impossible. Although specific and concrete recommendations are precluded by the complexity of the situation, four directions of improvement can be defined. Though presented separately, their close interrelationships suggest moving to a comprehensive strategy that addresses the environment, employment, productivity, and conflict and that would serve as guidepost and sequencing map for whatever measures may be feasible and effective at a given time.

Job and Income Generation. The need is twofold: rapid job creation for the rural unemployed, and provision of basic infrastructure. The example of the Burundian Public Works Agency

ABUTIP¹ is instructive, with its creation of 3.6 million workdays between 2001 and 2005 at a cost of \$5.5 million—or just \$1.50 per workday. The government can undertake similar initiatives, but these will require the financial support of donors.

Manage Conflicts Over Land. This agenda calls for mediation and judicial measures. The need to revitalize the *abashingantahe* (village councils of elders) by restoring their independence; provide clear rural land titles; formulate, cooperatively, practical ways to manage the conflicts between current occupants of the land and the returnees; and generally reintegrate the returnees economically. The integrity of the formal judicial and law enforcement system also needs to be rebuilt. Here, political will, government resolve, sensitivity, and dialogue will be more important than money. However, conflict could be alleviated if those who lose access to land as a result of the return of original owners were given priority in the jobs program mentioned above. The same would apply to the original owners who do not succeed in reacquiring their land.

Reduce Inequalities of Access to Land and Income. State-owned land should be distributed to the Batwa² (who are landless), to returning refugees, and to the displaced who do not return to their original lands. Moreover, the distribution of proceeds from main export crops must be reviewed. (Burundi's coffee farmers, for example, receive a far lower proportion of the sale price than farmers in any neighboring country, and one of the lowest in the world.) In the context of coffee liberalization, farmers are beginning to organize in green-coffee collection associations, with a view to eventually managing the washing stations themselves. Liberalizing the coffee sector without explicitly aiming for a more equitable distribution of assets and income would be a grave mistake with lasting consequences.

Protect the Environment to Benefit Agriculture. Reforestation and reintroducing soil protection methods (e.g., simple retaining walls, planting of vetiver or other grasses) are urgent as well as low cost. This should be accomplished with the most labor-intensive methods available and the barest minimum of equipment to provide maximum employment while beginning to reverse environmental degradation. A successful program will not require very much financing, but will require unusual institutional flexibility and imagination.

Encourage More Intensive Agriculture and Livestock Methods, and Improve Market Access. Although this is a very long-term effort, a beginning may be made by encouraging the use of selected seeds, fertilizers, tools, and competent extension services that benefit from relevant research such as that by the Burundian Agricultural Research Institute, ISABU. Market access is not constrained so much by rural road infrastructure, which is better than in other countries, but by a lack of communications, commercial information, and well-located rural market sites.

¹ *Agence Burundaise de Travaux d'Intérêt Public.* This agency is involved in building public infrastructure such as markets, slaughterhouses, sanitation facilities, serviced sites, schools, health facilities, rainwater catchment systems for urban areas, water supply systems, engineering works (culverts), and paved roads.

² The Batwa, originally nomadic, are now localized.

Widespread corruption in Burundi will seriously hamper any of these measures, especially recommendations that entail allocation of resources and action by government institutions. For example, sugar contracts are now awarded to personal acquaintances. Thus, in the multipronged struggle against official corruption, intervention to break closed circles of patronage, exclusion, and favoritism in agriculture would be a high priority and could carry major leverage for improving public integrity in other sectors.

1. Introduction

A look at the history of Burundi reveals a country besieged by climatological and epidemiological problems for over a century. High population density was already beginning to create problems in certain parts of the country as early as the 1800s. The 19th century was marked by 50 years of one disaster after another, with epidemics, epizootic outbreaks, and climatic accidents destroying crops, while drought and famine ravaged the country's human and livestock populations year after year, until the early 1940s. Except for rinderpest, epizootic diseases are certainly not new to Burundi. Nor, for that matter, are cycles of drought. The magnitude of the crisis in the first half of the 20th century can be explained by the crisis in the precolonial agrarian system, according to Hubert Cochet (2001), who believes that the country had probably reached some sort of Malthusian ceiling. Ecological and epidemiological shocks are nothing new. They have happened before, though on a much smaller scale.

The period after World War II was marked by internal migration from overcrowded provinces (Ngozi, Gitega, Bujumbura) to less densely populated provinces (Cibitoke, Makamba, Bubanza, Rutana), encouraged by the country's Belgian administrative authority. There was also migration to mining areas of the Congo (Katanga, Kivu), while thousands of other Burundians fleeing forced labor emigrated to Uganda, Tanganyika and even Kenya in search of gainful employment.

These domestic and international population movements attest to the existence of overpopulation problems as far back as the early 1900s. Attempts to control population pressure through voluntary emigration (to Gabon) worked until the early 1980s, when borders closed throughout the subregion. After this point, only refugees continued to leave the country in large numbers, particularly since the 1972 crisis. Pressure on natural resources is not a new phenomenon but has intensified over the years.

Thus, there has always been a struggle for resources, but it did not escalate into an open conflict at the highest levels of government until 1965, with the involvement of the public as "foot soldiers" based on promises of awards of all types of assets. In an overpopulated country dependent solely on agriculture, the most important asset is land, which provides a livelihood for the rural population, making it an important resource and a trump card.

The main issue explored in this paper is the link between land, environment, employment, and conflict in Burundi. The discussion is organized as follows. We begin with an examination of trends, constraints, and opportunities associated with the main drivers shaping the rural environment in Burundi. These drivers are agriculture and livestock-raising, environment, employment, and social conflict and land disputes. We then study linkages between these drivers,

with an emphasis on the role of land. Next, we identify the challenges raised by each of these drivers. Finally, we draw a general conclusion and make short- and medium-term recommendations to be implemented with the support of Burundi's bilateral and multilateral development partners.

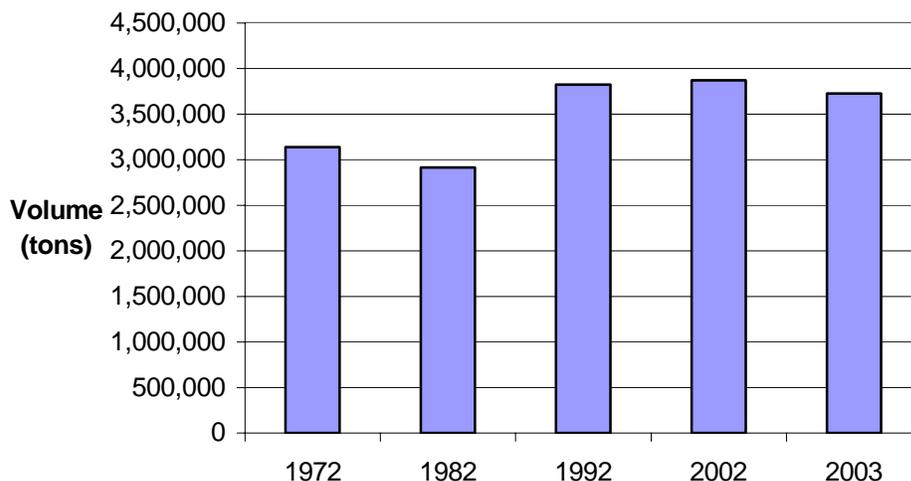
2. Trends, Constraints, and Opportunities Associated with the Driving Forces

AGRO-FOOD SYSTEM, FOOD SECURITY, AND NUTRITION

Trends

Food production or the growing of food crops is Burundi's most important economic activity in terms of the size of the workforce (see Figure 2-1)³. In 2004, for example, 94 percent of the country's working population was engaged in growing food crops, which account for 23 percent of its GDP. The country's main food crops are grain (maize, sorghum, rice, wheat, grasses), pulses (beans, green peas), oilseed crops (soybeans, groundnuts, oil palm, sunflowers), tuber crops (sweet potatoes, cassava, potatoes, cush-cush, yams), bananas, fruits, and vegetables.

Figure 2-1
Trends in Crop Production



³ See Appendix A for a breakdown of corresponding figures.

SOURCE: Data supplied by the Ministry of Agriculture and Livestock-Raising

The volume of food production showed little change between the 1970s and 1980s, languishing at roughly 3 million tons. By the 1990s, total food production had climbed to and leveled off at 3.8 million tons. The country's main crops in terms of production volume were bananas, cassava, sweet potatoes, beans, and maize. These are the same crops currently suffering from drought and disease, particularly in the country's northern provinces, which is in the throes of a raging famine caused by disease and climate change.

The poor performance of Burundi's agricultural sector is undermining food security. The aggregate volume of food production has failed to keep pace with the rate of population growth, with per capita production down 15 percent in a 10-year span. The result is inadequate caloric intake and a nutrient-poor diet.

Malnutrition problems are reflected in the high global acute malnutrition rates, which range from 6 percent to 17.8 percent, and severe acute malnutrition rates, which range from 1.1 percent to 4.1 percent among the child population, depending on the region. The prevalence of endemic goiter (with rates as high as 42 percent in certain provinces) and anemia (with young children and pregnant women accounting for 56 percent of all reported cases of this disease) attests to the high frequency of micronutrient deficiencies (IDEC). Malnutrition has many causes, some of which have to do with the depletion of the soil in farming areas, years-long drought, the fragmentation of land holdings, the poor performance of current farming systems, and poor nutrition, particularly during weaning and attempts to diversify the diet of young children. Among the poor, closely spaced pregnancies shorten the breast-feeding period, making children vulnerable to malnutrition. The country is sinking deeper and deeper into a chronic state of food insecurity, aggravated by repeated droughts in many areas.

Constraints

The performance of the country's agricultural sector is hampered by a number of constraints that are severely undermining productivity. The major constraints are:

- Steady land degradation due to erosion and over-cropping;
- Heavy population pressure, resulting in the constant breakup of land holdings;
- Decline in stock-raising operations, limiting the availability of manure for fertilizing fields and animal products such as milk and meat;
- Cash poverty, curtailing purchases of needed inputs for improving crop yields (fertilizer, high-quality seeds, farm implements);
- The sluggishness of trade flows in rural areas, which would help bolster the subsistence economy;
- Low school attendance rates, limiting the population's openness to technological innovation;
- Climatic hazards in general and drought in particular;
- Limited use of water resources for irrigation purposes;

- Lack of off-farm employment as a result of which a large percentage of the rural workforce is idle most of the year, except during the growing season.

Opportunities

Opportunities in the agro-food sector include a wide range of crops, the potential for improving yields,⁴ undeveloped wetland areas, and irrigated seed-farming areas.

The range of crops includes grains, pulses, oilseed crops, tubers, bananas, and other fruits and vegetables. If farmed effectively, this wide variety of crops could ensure food security as the basis for good human health conditions.

According to the Ministry of Agriculture and Livestock-Raising database, actual crop yields are below potential across the board. Thus, better yields are a must to boost crop production in a country like Burundi, which has very limited cropland.

There are still some underdeveloped wetland areas. Only 69 percent of these areas are currently under cultivation. Wetland areas cover approximately 117,993 hectares, of which only 81,404 hectares are farmed. The cultivation of all wetland areas based on sound farming practices would help boost and diversify crop production without threatening the environment in general or biodiversity in particular. To this end, the rural engineering department of the Ministry of Land Management, Tourism, and Environment takes appropriate precautions as part of any irrigation or drainage project or other works program. Any program implemented in wetland areas is preceded by an environmental impact assessment to avoid development liable to harm the environment.

The establishment of irrigated seed-farming areas on public lands can also help boost high-quality production. A total of 1,409 hectares of public lands are currently being used for seed farming activities, including 825 hectares under irrigation.

AGRICULTURAL EXPORTS

Trends

Burundi's main export crops and agroindustrial exports are coffee, tea, cotton, sugar, quinine bark, palm oil, and tobacco (see figure 2-2)⁵.

Coffee. In general, there has been a steady downward trend in coffee production in recent years. Production increased from 23,000 to 35,954 tons in the period 1962 to 1983, then leveled off at 31,000–36,000 tons between 1983 and 1992. From this point onward, it began to decline steadily, reaching a 50-year low of 6,152 tons in 2003, with only occasional surges in production, as in 2002 (to 36,000 tons).

⁴ Improving yields and drought-resistant crops are discussed in the Boosting Agricultural Production and Productivity section.

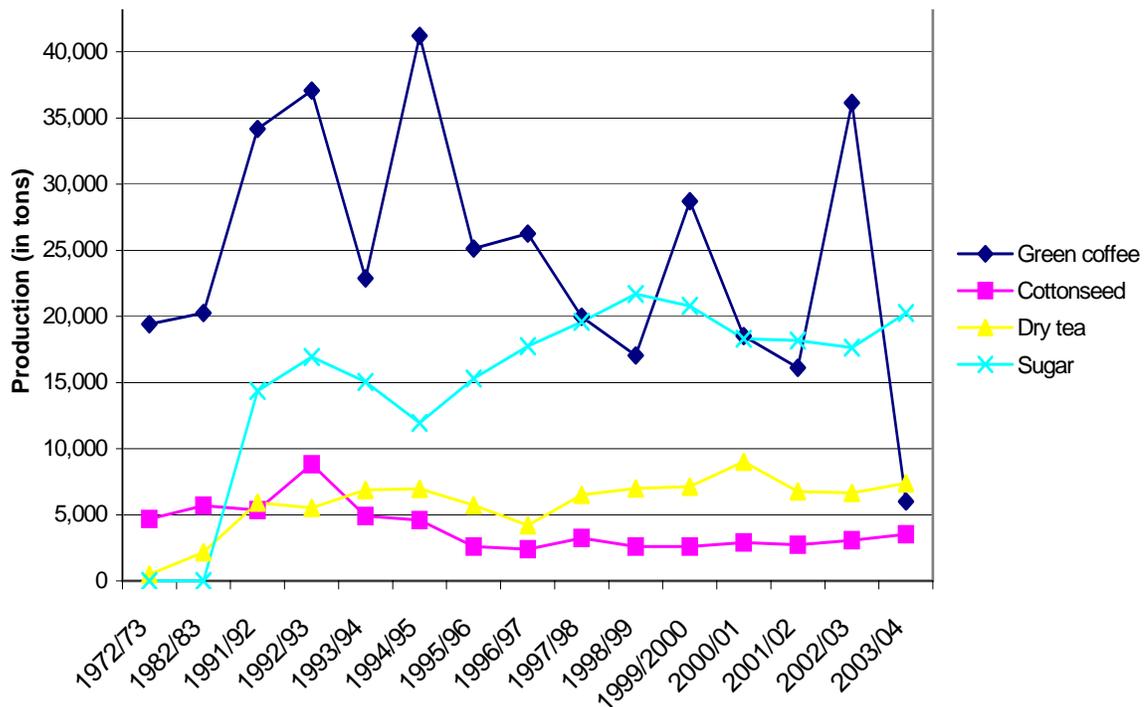
⁵ See Appendix A for a breakdown of these figures.

Tea. Tea production has increased steadily from 81 tons of dry tea in 1968 to 487 tons in 1972, 2,178 tons in 1982, 5,951 tons in 1992, to 7,188 tons in 2000. Tea plantations are well managed and well maintained.

Cotton. Cotton production grew consistently until 1992, when it reached 6,331 tons, only to fall back to 2,600 tons in 1996, and to 2,350 tons in 1997 with the escalation of the war in Moso (Rutana, Ruyigi), which had more than 2,000 hectares of land under cotton production before the crisis. Farm-gate prices for cotton offer little incentive when compared with prices for cash crops such as paddy rice and coffee. Cotton prices have inched slowly upwards since the 1980s. From 35 Burundian francs (FBU) per kilo of cotton seed during the period from 1984 to 1987, prices climbed slowly to 40 FBU between 1988 and 1990, to 50 FBU in 1991 and, eventually, to 150 FBU in 2003–2004.

Sugar cane. Sugar cane is grown on industrial farm units covering over 2,500 hectares, including 1,000 hectares of tablelands, with only very limited quantities grown in village plots. Production has reached 20,000 tons a year on only four occasions since the startup of the sugar mill (21,703 tons in 1998, 20,724 tons in 1999, 20,258 tons in 2003, and 20,150 tons in 2004).

Figure 2-2
Trends in the Production of Major Industrial Crops



Production of other industrial crops (quinine bark, tobacco, ornamental plants, fruits and vegetables) is marginal.

Constraints

Coffee. The slippage in coffee production is attributable largely to declining yields from coffee plants, aging coffee plantations, poor upkeep (the elimination of mulching), plant health problems (insects and disease), and the lack of incentives for coffee growers.

In many cases, the low incomes of coffee stakeholders in general and planters in particular are a result of seesawing world coffee prices, which have been running far too low since 2000 (at less than 60 cents per pound), bottoming out at 40 cents per pound in 2002–2003. The prices paid to coffee growers are extremely low compared with the earnings of other stakeholders. Coffee farmers in Burundi get only an extremely small share of the international price, or roughly 40 percent, compared with an 85 percent share in Kenya for example (Prisca, Oketch, Huggins).

The result is a faltering coffee industry, with declining production, falling prices and, thus, dwindling revenues, high deficits, and a lack of incentives for coffee growers.

Tea. Despite good production performance, industrial equipment is aging and could create manufacturing problems in the future. The tea industry lacks the momentum necessary to boost production capacity in the Bututsi and Mugamba regions.

Cotton. The main constraints in the cotton sector have to do with the reduction in the size of cotton-growing areas on the Rusizi Plain, the lack of transparency in the management of the cotton fields of peasant farmers in the Imbo Valley and the lack of incentives for cotton farmers. Though cotton was Burundi's second-most-important export crop until the mid-1980s, the country stopped exporting cotton for a number of years (beginning in 1991). Cotton exports resumed in 2005 after the main local customer for cotton crops (the Burundian Textile Complex, COTEBU⁶) found itself in financial difficulty. There is very little incentive for farmers to grow cotton.

Sugar cane. The sugar cane industry is promising, but Moso Sugar Company (Société Sucrière du Moso [SOSUMO]) is having an increasingly hard time dealing with aging equipment and climatic hazards (drought in particular).

Quinine bark. Quinine bark production is down because of falling prices, the lack of markets, and the lethargy of businesses investing in this sector.

Tobacco. The decline in tobacco production is attributable mainly to the Burundian crisis, which has been ongoing since 1993. There are signs of a pickup in production in tobacco-growing areas.

Opportunities

Coffee. The restructuring and rehabilitation of the coffee industry could boost production potential. The high quality of Burundian coffee (which could be improved even further) is an asset, which should be built on by paying coffee growers a fair price and developing niche

⁶ *Complexe Textile du Burundi.*

markets in the West. Farmer organizations taking over the management of coffee washing stations, purchasing coffee berries, and selling so-called “fully washed” coffee should solve part of the problem of the poor compensation of small-scale coffee growers.

Tea. The tea produced by Burundi is also of high quality. Burundi’s tea sector is still young and promising. Production capacity can be increased, particularly in the Bututsi and Mugamba regions. The development of niche markets should boost stakeholder compensation. This sector would benefit from privatization, which would make it more efficient and effective. Sector reform efforts are already underway, looking to open it up to private investment.

Cotton. Cotton production could be stepped up by improving training and the distribution of corresponding inputs. There is a demand for what is perceived as high-quality Burundian cotton on European markets.

Sugar cane. Sugar cane grows everywhere in Burundi (offering an opportunity to boost production) and there is an unmet demand for this crop, both in Burundi and in neighboring countries.

There are opportunities for the diversification of agricultural exports involving products such as essential oils, fruits and vegetables, palm oil products and byproducts, cut flowers, etc. However, the export potential of these products has not been established.

LIVESTOCK RAISING

Trends

The main types of livestock raised in Burundi are cattle, goats, sheep, hogs, and poultry (chickens), in that order. Rabbit, duck, geese and guinea-pig production is marginal, though promising. Trends in population dynamics for the main types of livestock raised in Burundi are outlined below (see figure 2-3).

Cattle. The cattle population grew from 459,000 head in 1962 to as many as 890,000 head by 1982, only to decline steadily throughout the 1990s and early 2000s, plummeting to 377,000 head by 2004.

Goats. The country’s goat population followed the same trend as its cattle population, steadily growing until 1992, declining sharply during the war years, or between 1993 and 1999, and rebounding beginning in 2000. Goat-raising operations were hard hit by the crisis, with goat herders losing approximately 46 percent of their herds in the four-year period from 1993 to 1997.

Sheep. Sheep have long been discredited and spurned by Burundian culture. With sheep consumption considered taboo, sheep-raising is still only a marginal activity. The country’s sheep population grew from 180,000 to 270,000 head in the period from 1962 to 1992, only to drop back to 242,000 head by 2002.

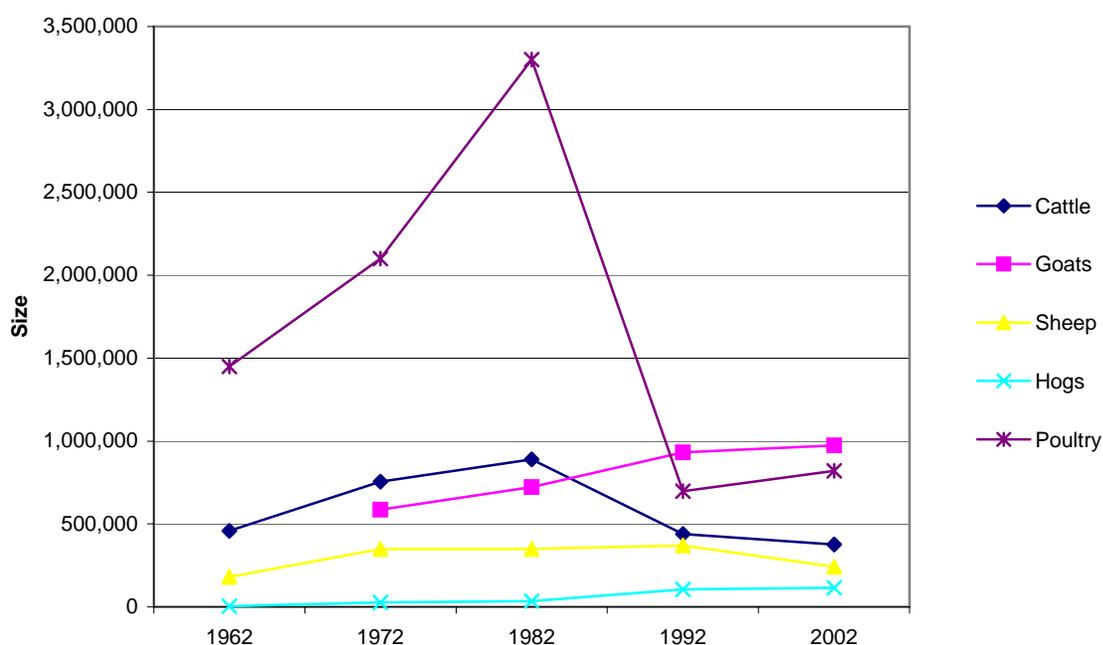
Hogs. There have been no training efforts or any specific government project in the hog-raising sector. While still small, in general, the hog population has grown. From a mere 4,000 head in 1962, the size of the hog population jumped to 116,000 head by 2002.

Poultry-raising. Most poultry farmers in Burundi raise chickens. Duck, turkey, geese and pigeon-raising operations are marginal at best. The poultry population had been steadily growing until the beginning of the crisis in 1993, in the course of which more than 46 percent of the nation's poultry flocks were decimated.

Figure 2-3 depicts trends in the size of livestock populations during the period from 1962 to 2002.

Figure 2-3

Trends in the Size of Livestock Populations, 1962–2002



All other types of livestock operations (rabbits, guinea-pigs, fish farming, bee-keeping) are marginal at best.

Fishing. Since 1990, industrial fishing yields have fallen to below 3,000 tons per year, plummeting to a mere 35 tons in 1999. There are no longer any industrial fishing fleet operators.

Production. *Animal production* is limited at best. Milk is produced on small family-run farms and periurban dairy farms. Milk production, which was fairly good until the early 1990s, has since fallen off sharply, to the point where the country's only dairy was forced to shut down because of an inadequate supply of raw materials.

Meat production, which is also contingent on herd size (estimated at roughly 329,000 head in 1999), has fallen off in the wake of continuing losses of livestock. The entire country has only a single (outdated) slaughterhouse meeting technical slaughtering and cold storage requirements.

Fish production, which had been averaging 20,000 tons per year for a period of several years, collapsed in the wake of the 1993 crisis because of security problems (on the lake and on beaches) and the shutting of the lake, and plunged to 2,994 tons by 1996. Catches in the country's northern lakes barely top 500 tons per year. The fish population in the northern reaches of Lake Tanganyika has dwindled as a result of overfishing and pollution from factories in Bujumbura.

Other types of production (eggs, honey, etc.) have also suffered as a result of the ongoing crisis.

Constraints

The instability created by the crisis affected all economic sectors, including livestock raising, decimating the country's cattle, goat, sheep, hog, and poultry populations and undermining fishing activities. These constraints associated with the Burundian crisis are cyclical or short-term constraints. The structural constraints affecting this sector are outlined below.

Cattle. Cattle-raising operations are hampered by a number of structural problems such as dwindling pasture resources, disease (foot and mouth disease, etc.) and parasites, the shortage and high cost of medication, poor nourishment (poor quality pasture and a lack of concentrated feed supplements) and the limited genetic potential of the local cattle breed.

Goats. From a zootechnical standpoint, goat-raising activities are hampered by the extremely limited genetic potential of the local breed of goat (which is small in stature, weighs between 15 and 20 kilograms and is not milk-producing), an extensive stock-raising system with animals put out to pasture (roped to trees) and a poor diet with no feed supplements.

Sheep. Since colonial times, neither the government nor any research institute or private organization has mounted any project designed to improve sheep-raising activities, despite the interest of such activities for small farmers. Sheep-raising is subject to the same types of zootechnical constraints as goat-raising

Hogs. The main constraints hampering hog-raising activities are the predominance of relatively unproductive local breeds, a poor diet (of natural forage), poor animal health care, and a lack of any specific training project in this area.

Poultry. Egg production is still limited (at between 10 million and 15 million eggs per year) and prices are high, making eggs a luxury, which should not be the case. Poultry farming activities are hampered by a number of constraints, chief among which are a shortage of baby chicks, the scarcity and high price of feed concentrates and animal health problems (resulting in high mortality rates).

Fishing. The main constraints on fishing are the high price of inputs (lamps, nets) and the lack of packaging and cold storage equipment.

Opportunities

All stock-raising activities in Burundi (cattle, sheep, goats, hogs, poultry, etc.) are based on extensive grazing and management systems. An intensive stock-raising system could boost the performance of all types of stock-raising activities considerably (see the Boosting Agricultural Production and Productivity section).

ENVIRONMENT

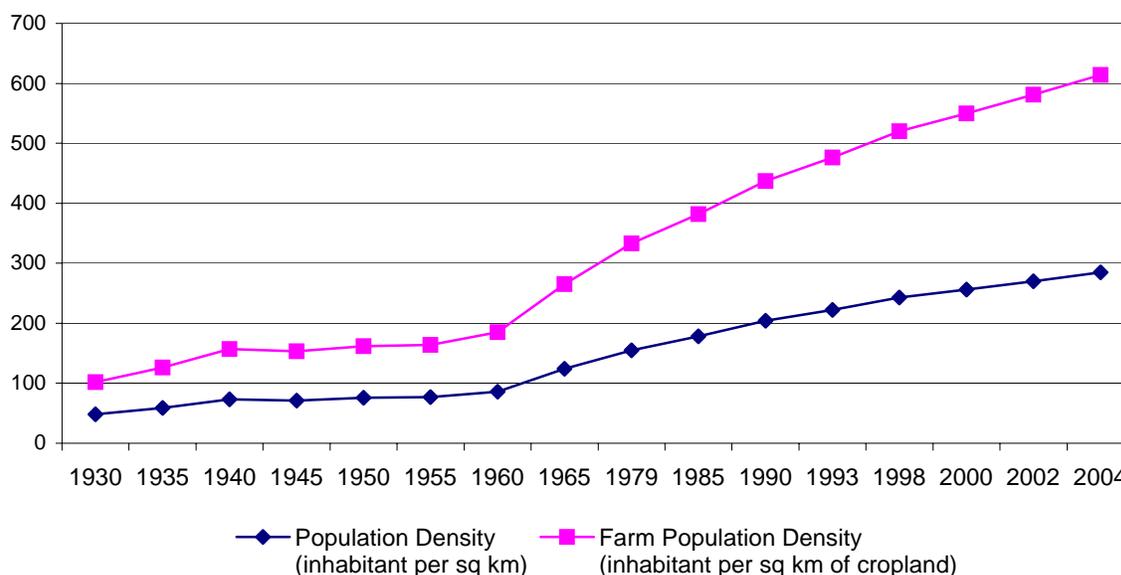
This section of the report discusses the environmental factors directly related to crop production, namely rural land, water resources, and forests.

Rural Land

Trends

In general, unoccupied land is becoming increasingly scarce. Population density climbed from 48 inhabitants per sq km in 1930 to 285 inhabitants per sq km in 2004, while the density of the farm population per unit of cropland jumped from 102 inhabitants per sq km in 1930 to 614 inhabitants per sq km in 2004.

Figure 2-4
Trends in Population Density



SOURCE: Ministry of Development Planning and Reconstruction/UNDP: *Retrospective Study of Population and Development—2005*.

Constraints

Land use planning is hampered by a lack of regional land use plans. There are also a number of other constraints, including:

- Shortages of land, leading to heavy land use speculation;
- The lack of a master land use plan, exacerbated by a lack of current land use and land tenure information;
- The lack of a crop calendar for each natural region, along with a crop and in-season monitoring system to capitalize on corresponding land capabilities;
- The fragmentation of farm holdings, preventing coherent and comprehensive land management.

Opportunities

There are few pluses as far as rural land is concerned. The government is aware of the pressing need to protect the country's land resources, as reflected in the provisions of the Environmental Code, which makes it mandatory to protect land from erosion. (According to Article 28, "erosion control is both a national and a personal environmental obligation ... [and] ... preventive erosion control measures may be declared a public convenience and necessity and imposed on any farmer or land occupant.")

Water resources

Trends

Availability of surface water resources. Compared with other African countries, Burundi has plentiful surface water resources, with an average flow rate of 319 ml per second. It also gets plentiful rain, with average annual rainfall ranging from 750 mm (in the Bugesera region) to as much as 2,000 mm (in the Kibira Forest). Per capita renewable inland water resources stood at 1,008 cubic meters per person per year in 2004, down from 1,520 cubic meters per person per year in 1990. However, recent droughts have reduced the water supply.

Lake Tanganyika is one of the world's largest fresh water reservoirs but is threatened by drought. The level of the lake has fallen sharply in recent years, as is evident all along the lake shore. Over the past few years, the availability of surface water resources has been sharply curtailed by drought conditions, particularly in the country's northern provinces.

Groundwater resources. The country has abundant groundwater resources. The sensitivity of groundwater resources to pollution depends on subsoil conditions, but few data are available on this subject.

Constraints

The main water management problem has to do with rainwater which, without erosion control measures, accelerates land degradation. The construction of hillside reservoirs would not only reduce water erosion, but would also provide irrigation water during the dry season. Other constraints in this area include

- Ignorance of the actual volume of water resources available, with all existing evaluations omitting groundwater resources and

- Planning problems with respect to the use and conservation of water resources in wetland and irrigated areas, with the ensuing risk of irreversibly destroying valuable ecosystems for biodiversity and climate control such as wetlands, which are being improperly farmed using uncontrolled flooding systems, causing irreversible loss of fertile soil, flora, and fauna and a drop in the level of the water table. Dams and irrigation schemes based on uncontrolled flooding can affect downstream water quality and soil salinity.

Opportunities

Burundi has assets that could be used to improve the protection and management of its water resources. Examples include technical and legislative tools such as the Master Plan for Wetlands Development, the Wetlands Act and the Water Resource Management Policy, whose implementation could significantly improve water management practices.

Forests

Trends

Burundi's forest cover consists mainly of artificial forest plantations of recent origin and relatively concentrated in a geographic sense. The government mounted a large-scale reforestation program beginning in 1978 under which it established some 55,000 hectares of new forest stands, expanding the nation's forest cover to an estimated 201,000 hectares by 1992, or to approximately 8 percent of its land area. There is very little information on the current state of these forest areas. Reforestation efforts undertaken in the course of the 1980s were severely undermined by the crisis. The size of the forested area shrunk considerably between 1990 and 2004, or from 8.2 percent to 6.23 percent of the land area.

Constraints

The main constraints as far as forests are concerned are:

- Mismanagement of the nation's forest wealth (the clearing of forestland to plant crops or graze animals, the uncontrolled harvesting of plant resources through illegal logging operations for sawmills, charcoal production, and various other uses);
- Limited capacity of the Ministry of Land Management, Tourism, and Environment to mount a forest resource development program or, at the least, to repair the damage caused by the crisis (some 8,485 hectares of forestland were destroyed during the crisis period alone) and by brush fires. The ministry's main problem is a shortage of qualified personnel to staff its departments (land use planning, rural engineering, the Geographic Institute, etc.) and the minister's office;
- Disorganization in the lumber industry;
- Lack of supporting research to help adapt forest production to needs and to provide guidance for forestry activities and the remoteness of state forests of felling age in rugged areas without road infrastructure.

Opportunities

Despite these constraints, there is a real foundation for sustainable forest development, including the following assets:

- The mobilization of the Burundian people and the international community for the promotion of sustainable environmental management (the government recently approved a National Environmental Strategy and Environmental Action Plan);
- The existence of specialized human resources with varying levels of expertise since the establishment of the Higher Institute of Agriculture;
- A pattern of rainfall—nine months of rain a year—conducive to the rapid growth of forest species;
- A growing awareness on the part of the government of the importance of better forest cover, guaranteeing action, funding, and training for the mounting of reforestation and rural forestry programs;
- Versatility of Burundian peasant farmers, enabling them to engage in crop farming, stock-raising, and forestry activities simultaneously.

EMPLOYMENT

Trends

The size of the workforce in the agricultural sector swelled from 2.2 million to 3.1 million during the period from 1990 to 2004—a growth rate of 41.2 percent for the period as a whole. This pattern of growth is a product of natural population growth and the fact that an extremely large share of the rural population is supposedly engaged in agriculture, despite an extremely high rate of underemployment in this sector, rather than of any real increase in agricultural activity. The agricultural sector employs 93–94 percent of the country's entire labor force.

The industrial workforce has grown from 48,024 to 67,836 workers, while the size of the workforce in the services sector has increased from 105,106 to 146,439 workers. The industrial sector is still relatively undeveloped, consisting of extremely small-scale enterprises, with the tertiary or service sector dominated by trade and commerce.

The informal sector created 19,346 new jobs in the period between 1990 and 2004. The boom in informal business activity in the wake of the crisis explains the good performance of the informal sector in terms of employment generation, compared with other nonagricultural sectors. The informal sector employs 63–64 percent of the nation's private labor force.

Constraints

The main structural constraints in this area have to do with the overall weakness of Burundi's productive sector, the shortage of technical and managerial expertise, the nation's nonexistent employment policy, a lack of entrepreneurship, the poor economic climate, high production costs, and the lack of market access or access to credit.

Opportunities

Burundi has a large labor force (estimated at 3.3 million workers in 2004) concentrated in a small area.⁷ This labor force could be employed in highly labor-intensive works of the sort undertaken by ABUTIP and other stakeholders. ABUTIP created 3,616,104 man-days of employment in the period from June through December 2005 at a cost of US\$5.5 million, or US\$1.52 per worker per man-day. Labor-intensive public works programs are one-off, temporary solutions to employment problems. They offer a number of advantages. They pay wages for intermittent farm work which, though low, help give program recipients a certain degree of independence. They also facilitate the performance of public works, helping to promote land development at a reasonable cost (road-building, irrigation, reforestation, etc.).

RESOURCE ALLOCATION

Burundi's material wealth comes from its two main natural resources, namely land and agricultural commodities in general and coffee in particular. The nation's wealth is inequitably distributed, as discussed later in the report.

Distribution of Land

Before independence, the country's large land owners were the king, *Ganwa* chiefs, subchiefs, *Batware* (Hutu and Tutsi), courtiers (Hutu and Tutsi), and owners of large cattle herds. At the other end of the social spectrum was a class of landless peasants (*abagererwa* and *abashumba*) consisting mostly of poor Hutus and Tutsis and the Twa. Landless peasants were given tenants' rights to the lands of their masters in return for the performance of certain services (farming the master's lands, tending his cattle, etc.) Now, this class of landless peasants also includes refugees from the 1972 mass killings and certain internally displaced persons. The large land owners of the past would have several wives living on different estates. These women would give birth to several children, who were well-fed and, thus, had low mortality rates, which was not the case in poor households (among the *abagererwa* and *abashumba* in particular). In keeping with the system of hereditary succession for landed property, as what were originally huge estates passed down from generation to generation, in time, they got smaller and smaller. Right now, there are virtually no large land owners left, which makes it difficult to fashion a land redistribution policy (taking land from large owners for distribution to smallholders and/or landless peasants). The only lands available for redistribution are government lands, as is discussed later in the report.

Allotment of other Resources, Including Earnings from Agriculture

Trends

The economic dimension of the Burundian conflict has become increasingly apparent since 1965. Until that point, the conflict's economic import was limited mainly to the so-called "elite." In 1972, mobilization strategies began espousing economic issues. In 1993, such issues dominated

⁷ A large population can be both a plus and a minus, depending on its qualifications.

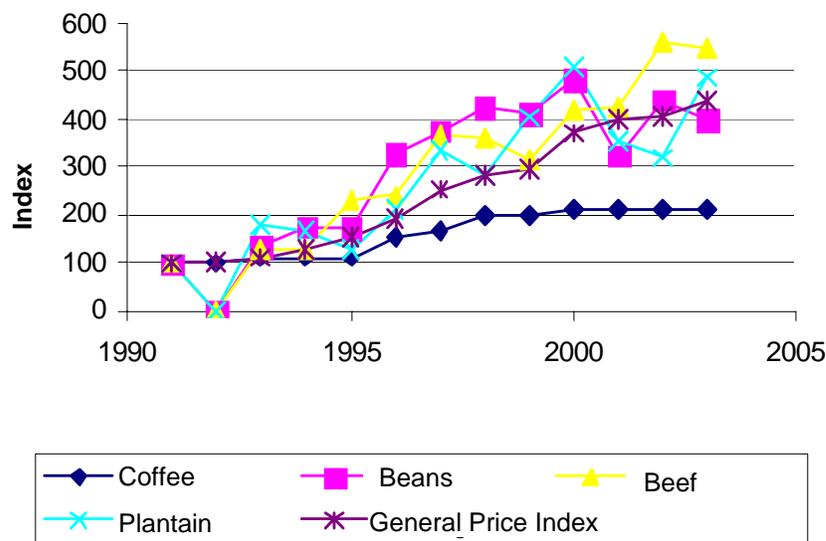
rallying cries, and expected economic dividends (land and other fixed assets) from the massacres had become an important catalyst.

Among the elite, the Burundian conflict, which was historically between the country's two main ethnic groups (the Hutu and the Tutsi) and, within these groups, between regional subgroups and clans, was perceived mostly as centered on a struggle for political power and for the financial resources that went hand in hand with this power.

Analysts have explored the economic dimension of the Burundian conflict for some time now (Ngaruko and Nkurunziza 2000, Lemarchand 1997, Uvin 1999, and Hamouda 1995). Using coffee growing as the basis for their study, Oketch and Polzer showed how the political struggle was really a battle for the control of resources (Lind, 2002, 51-84).

The usurpative nature of the coffee industry, infringing on the rights of coffee farmers, is reflected in the fact that, (1) until recently, it was the government that decided how coffee profits were to be allocated and, (2) that throughout the 1980s and 1990s, producer prices for Burundian coffee growers were not only far below the world market price but also well below producer prices in neighboring countries, leading to heavy contraband traffic. With the plunge in coffee prices, farmers became vocal about their desire to replace their coffee plants with more lucrative food crops such as tomatoes and beans. Some even went so far as to actually dig up their coffee plants. As illustrated in Figure 2-5, the coffee price index has been consistently below price indexes for food products since the 1990s.

Figure 2-5
Trends in the Coffee Price Index Compared with Food Products

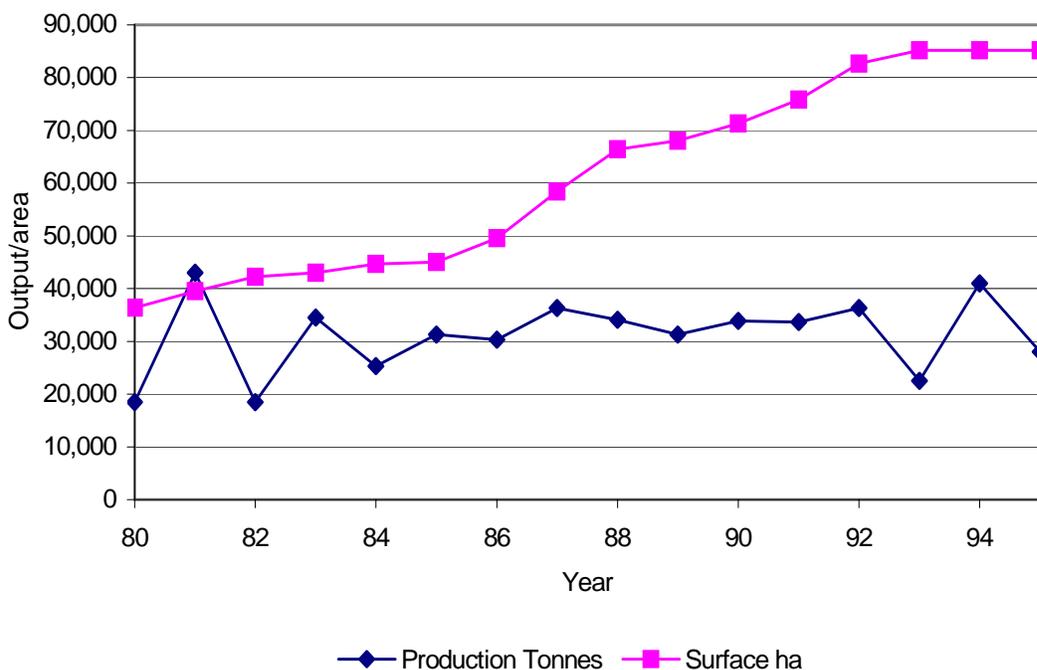


SOURCE: Burundi Statistics and Economic Research Institute and Burundi Coffee Board

Despite the precarious nutritional state of the rural population, more and more land was being planted in coffee without any corresponding increase in output (see Figure 2-6). While producer

prices in other countries managed to triple in boom years, Burundian coffee planters never even saw their prices double. The buying power of a kilogram of coffee climbed to 7 times the 1970 benchmark figure in Burundi, while reaching 14 times this figure in Costa Rica and Colombia.⁸

Figure 2-6
Trends in Output and Area Planted in Coffee



Source: Ndimaya, *La Filière café burundaise*

Constraints

The main constraint associated with resource allocation, other than land, is poverty. Burundi is an extremely poor country with a high rate of cash poverty,⁹ which has grown in the past few years. The percentage of the urban population living below the poverty line between 1990 and 2004 rose from 32.4 percent to 65.7 percent, while the rural poverty rate jumped from 35.1 percent to 70.5 percent. In both environments, the percentage of poor doubled, underscoring the magnitude of the impoverishment of the Burundian people.

The main causes of the rise in poverty in both rural and urban areas have not changed throughout the ongoing crisis. The poverty of the rural population is attributable mainly to land productivity problems, aggravated by security problems preventing farmers from planting crops and drought conditions in certain parts of the country. The rise in poverty in urban areas is attributable to the decline in real wages eroded by inflation and growing unemployment in the wake of the shutdown of businesses, the flight of rural dwellers, feeling unsafe in the countryside, to the city,

⁸ Patrice Ndimanya, *La filière café* (The Coffee Industry).

⁹ The simplest and best known measure of poverty is the ratio of poor to the total population.

and the influx of new job seekers (with and without secondary school diplomas and degrees from institutions of higher learning).

Any study of household poverty would be incomplete without examining income disparities at the national level based on the Gini inequality index, which includes land as an income generator for rural households. Other resources (public funds appropriated by the elite and coffee revenues) are included as income for those with access. Though the Gini index may be an aggregate measure of inequality, it is a quick way of assessing income disparities.

A study of inequality in Burundi in 1998 revealed its true magnitude, putting the Gini index at 44.7 percent (Burundi Statistics and Economic Research Institute, 2001).¹⁰ However, as in the case of most African countries, there was visibly more inequality in urban areas than in rural environments. In fact, the Gini index for Bujumbura Mairie in 1998 was 46.2 percent, compared with 36.5 percent for the rest of the country. According to the Quid survey conducted in 2002, the global Gini index was 37.98 percent, compared with 43.2 percent for Bujumbura Mairie and 27.87 percent for the rest of the country, reflecting a slight improvement in income distribution. However, in general, income was down as a result of the crisis.

Opportunities

The constraints associated with income distribution in Burundi are so powerful (rooted in the abject poverty of the country's population) that all the opportunities in this area involve poverty reduction. The Final Strategic Framework for Economic Growth and Poverty Reduction (which is nearing completion) should help fashion more equitable policies for the distribution of national wealth at all levels. The second strategic focus of the Interim Strategic Framework for Economic Growth and Poverty Reduction called for stepped-up economic growth as an approach to poverty reduction.

SOCIOPOLITICAL CONFLICT AND LAND DISPUTES

Trends

The sociopolitical conflict in Burundi has often been represented as an ethnic conflict.¹¹ To better understand the nature of this conflict, we need to start by looking at Burundi's form of government, in a political sense, both before and during colonial rule.¹² Before the colonial era, politically speaking, the country was headed by a king—the father of the nation (“Sebarundi”)—whose territorial authority was delegated to chiefs heading up its various administrative subdivisions. At first, this authority was vested in royal princes or *Ganwa*, particularly in the case

¹⁰ The Gini coefficient is a number between 0 and 1 where 0 is perfect equality and 1 is perfect inequality.

¹¹ A study of Burundi's sociopolitical conflict requires lengthy analyses for which there is no room in this paper and which, thus, have been abridged in the interests of brevity.

¹² See the 2005 National Human Development Report for a more detailed discussion of the nature of the Burundian conflict, from which this section was excerpted.

of large, newly conquered outlying provinces, both for strategic defense reasons, that is, to protect them against foreign invaders, but also as a way of keeping opponents and potential rivals at bay.

The Burundian monarchy was a hegemonic government controlled mainly by the *Ganwa* who, out of concern for the country's political and social integration, shared power with Hutu and Tutsi clans. This search for political and social stability and integration took a bad turn in the second half of the 19th century as land became increasingly scarce and population density increased, leading, on one hand, to centralization and stronger government and, on the other hand, to the "hardening" of trade relations and the growth and strengthening of feudal-type relationships under the so-called *ubugabire* and *ubugererwa* systems.

The country's Belgian rulers restructured the government and Burundian society with the help of the Missionary Church. The Belgian authority administering Burundi as a U.N. trust territory decided to establish a system of indirect rule through representatives of the country's two main ethnic groups. The politicization of ethnic hostilities (between the Hutu and the Tutsi) by the colonial government brought to the forefront the notion of the so-called "force of numbers," setting a Tutsi minority against a politically excluded Hutu majority, and underscored the impossibility of the peaceful coexistence of the Burundian people without a certain revolutionary challenge to the existing sociopolitical order, which was represented as inequitable from a land tenure standpoint. This was one of the main arguments espoused by the leaders of all ethnic conflicts (the elite) between 1965 and the crisis beginning in 1993.

Most of the rural population (Hutus and Tutsis) has always shared the same living conditions. In 1954, Philippe Leurquin used a sample survey to examine living conditions in Rwanda and Burundi, concluding that "differences in caste can no longer explain income disparities in rural areas" and that the equation "Tutsi = herder = wealth; Hutu = farming = poverty is no longer valid." (Leurquin, pp. 202–203, 278–279).

The social conflict in rural areas invariably involves land. Social hostilities and land disputes had been escalating with each passing year, and the 1993 crisis further complicated land issues. Most lands abandoned in the wake of the displacement and exile of part of the population during the 1993 crisis were taken over by relatives, in contrast to the situations in 1965 or 1972, when the plundering of land and property was viewed as a way of settling politico-ethnic disputes. The return of these refugees and displaced persons has been creating friction with the current occupants of these land holdings and other types of property.

Heavy pressure on land has had repercussions: Latent hostility between natives and recent immigrants, particularly in Bubanza and Cibitoke; and an escalation in land disputes, with 80 percent of all court cases now involving land issues, mounting violence related to land disputes between family members and neighbors, and growing numbers of accusations of and murders associated with the practice of sorcery.

Constraints

The constraints associated with Burundi's sociopolitical conflict basically have to do with the government's limited resources, which are able to meet the needs of only a small group. Instead

of increasing the size of the pie through lucrative investments, the political elite continues to battle for its share of an increasingly smaller pie. In other words, here again, the main constraint is poverty. The subregional environment is also a factor.

The main constraints fueling land disputes in rural areas are as follows:

- The fragmentation of family farms under the country's system of inheritance. The average size of the family farm was roughly 0.5 hectares in 2005, down from 0.7 hectares in 1990.
- The limitation imposed on domestic migration from densely populated (Ngozi, Kayanza, Gitega, Muramvya) and barren (Mugamba, Bututsi) areas to more sparsely populated and more fertile areas (Cibitoke, Bubanza, Makamba, Rutana, Cankuzo) as these receiving areas reach saturation level.
- Restrictions on emigration to neighboring countries (Tanzania, Uganda, Congo) in the face of the unstable political climate in the region.

Opportunities

There are very few opportunities for resolving the sociopolitical conflict without first reducing poverty. The only opportunity for settling land disputes seems to lie in the bill for a new land code introducing the following innovations into the country's land code dating back to 1986:

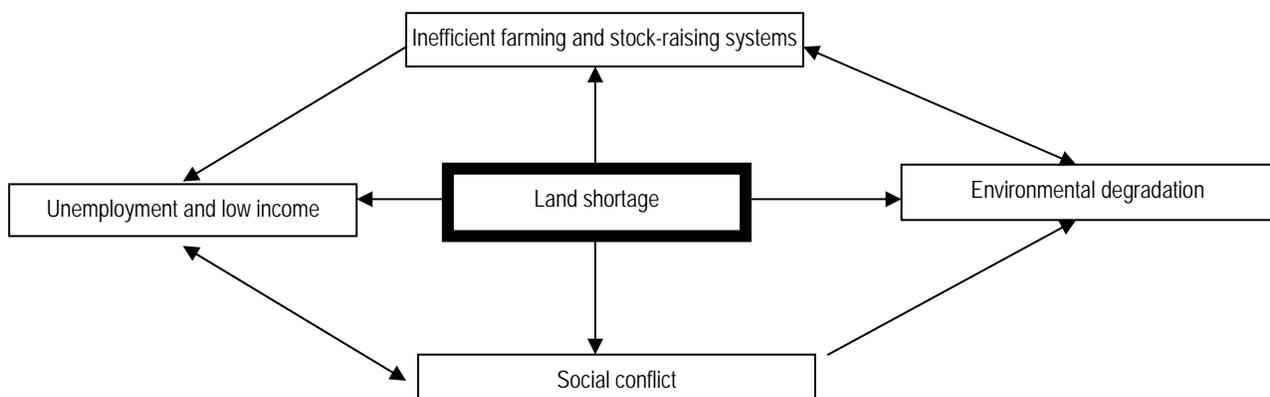
- It grants farm operators who, up to now, have had only a beneficial interest in their land, rather than a permanent title to their farms;
- It gives the municipality the right to make land grants of up to 2 hectares subject to notification of the municipal land tenure board. It also grants the Ministry of Land Management the right to make grants of up to 20 hectares while, under the provisions of the current code, the municipal government can make no such land grants whatsoever and the ministry has the authority to make grants of up to 50 hectares of land. The advantage of this decentralization of the power to distribute land is that it should simplify formalities and allow for better monitoring or, in other words, for ensuring that these land grants are going to those most in need, which is not the case under the current system. This strengthens the role of local government in natural resource management. By giving more power to the municipality, lawmakers are hoping to encourage local government structures to resolve key issues falling within their realm, of which the thorniest is the land tenure issue.
- The provincial governor will no longer have the authority to make land grants.

The drivers shaping the rural environment are all interrelated. Their common focal point is the shortage of land. The interaction of these drivers is explored in the next section of the report.

3. Interaction of the Driving Forces in the Rural Environment in Burundi

Our study of the interaction of the different drivers shaping the rural environment in Burundi is based on the model in Figure 3-1. The two-way arrows indicate a two-way relationship. In fact, any one driver can influence any of the other drivers, although certain types of interactions are clearer and more important than others.

Figure 3-1
Interaction of Drivers Shaping the Rural Environment



LAND SHORTAGE AS THE FOCAL ISSUE

The issue of land lies at the very heart of the different problems found in rural areas of the country. As explained earlier in the report, a shortage of cropland leads to overfarming which, in turn, reduces crop yields. A shortage of good grazing land affects milk and meat production in stock-raising operations. The scarcity of land is also responsible for causing environmental degradation. In fact, all cropland is farmed using unsound farming practices, while pasturelands are subject to overgrazing, resulting in erosion which, in turn, causes land degradation, which is the main cause of the low productivity of the agricultural sector (crop farming and livestock raising). The shortage of land is also a factor in the unemployment problem in rural areas. When

plots are too small, they are unable to keep the farm population busy 12 months a year. With no off-farm employment, the rural population is besieged by deep-seated, chronic unemployment and underemployment problems. Moreover, to a large extent, the shortage of land is also at the root of the social conflict. As pointed out earlier, more than 80 percent of all court cases in rural areas involve land disputes. The same is true of crime in general and murders in particular in rural areas of the country.

In the face of strong population growth (more than 2.5 percent per year) and limited nonrenewable natural resources, living conditions for Burundi's rural population are precarious, with permanent pressure on natural resources and limited access to land, food, and wood resources.

The severity of the problem of the growing scarcity of land in Burundi supports the theory of the land shortage operating as the driving force in the mobilization of peasant farmers in movements espousing violence. There are strong indications that Burundi is caught in a "demographic trap." According to Maurice King, a population is caught in a demographic trap when: (1) its size exceeds the carrying capacity of the local ecosystem; (2) it can no longer secure goods in general and foodstuffs in particular produced by other ecosystems, except in the form of food aid; and (3) it can no longer resort to emigration as a way of improving its living conditions (King 1994). The role played by the land shortage in the mobilization of peasant farmers during the mass-killings of 1993 was also underscored by the United Nations Commission of Inquiry. Burundi is in the grips of an environmental conflict, with the governing notion being that certain types of social conflict are attributable to shortages of natural resources such as land, water, and forests. Other, more nuanced, theories maintain that, although there is some connection between conflict and shortages of natural resources, there is no direct link, and these theories allude to many other contributing factors such as the actions of political leaders. Thus, a shortage of resources can help facilitate efforts to mobilize the public for the promotion of violence and heighten existing conflicts.

Homer-Dixon (1998) also contends that harmful changes in the environment and shortages of resources can lead to conflict, particularly in poor nations. A scarcity of resources such as land, exacerbated by population pressure, environmental degradation, and inequitable resource allocation leads to poverty, intercommunity hostility, and population displacement. This, in turn, leads to instability and conflict. This contention is particularly true in the case of Burundi. Indirectly, access to and the control of scarce land resources and other natural resources are at the root of the Burundian conflict.

DRIVERS IN AGRICULTURE AND LIVESTOCK-RAISING

In addition to the land factor, other drivers in agriculture and livestock-raising have to do mainly with the environment and, more specifically, with the use of wood resources in forests and public and private forest plantations. Forestry activities involve the use of what have become increasingly scarce wood resources with the clearing of land for farming and logging operations. The cutting of trees for charcoal production, for example, is responsible for the shrinkage in the size of the area covered by open forests on the southern plains of the Mumirwa region, while valuable tree species in mountain forests are targeted by loggers. These practices are eroding and depleting the country's forest resources. The problem was heightened by the Burundian crisis in

which the felling of trees and fires speeded up the destruction of forestlands, while reconstruction only stepped up the pace of logging operations. Nor have public and private forest plantations been spared. Environmental degradation has direct effects on agriculture, causing drought, rain erosion, and production shortfalls. Thus, agriculture and environment are “communicating vessels.”

DRIVERS IN THE ENVIRONMENT

The main driving forces as far as the environment is concerned have to do with farming and stock-raising, as well as with the social conflict.

Farming. Farming activities are hampered by a number of constraints, but the main constraint from an environmental management standpoint is the downsizing and fragmentation of farm units, particularly in densely populated areas. In fact, heavy population pressure on the land causes over-cropping and soil depletion. It also leads to the opening up of new lands in sparsely populated areas, forest reserves, and protected areas, with damaging effects on the land and on biodiversity. Likewise, wetlands development and resulting irrigation schemes can have harmful effects on stream flow conditions and biodiversity.

Stock-raising. Stock-raising is a human activity with enormous environmental impact. In fact, most stock-raising operations are based on extensive grazing and management systems exceeding the carrying capacity of the land by a wide margin compared with the size of farming and forested areas. Environmental problems and constraints associated with stock-raising activities include the increasing scarcity and shortage of pasture resources, overgrazing, health problems (including human as well as animal health problems), possible damage to erosion control structures by livestock, and the practice of setting land-clearing brush fires in quest of more pastureland. The practice on the part of herders of burning brush to produce fresh pasture strips away ground cover and robs the soil of organic matter that needs to be restored. It also pollutes the air.

Social conflict. The main effect of the influx of Rwandan refugees in the north, high concentrations of displaced or resettled persons, and illegally set fires in virtually all parts of the country has been the massive destruction of the nation’s forest wealth. An estimated 31,000 hectares of forestland were destroyed in the period from 1993 to 1996 alone.

DRIVERS IN THE SOCIAL CONFLICT

Aside from a scarcity of land, one of the main causes of social conflict is joblessness and, thus, financial problems. Other indirect drivers in social conflict are inefficient farming and stock-raising systems affected by and, in turn, promoting environmental degradation which, in turn, leads to unemployment and money problems.

Unemployment. It is easy to rally an idle population with promises of jobs and money. In a climate of abject poverty in which money is extremely scarce, financial causes have that much more resonance in a rural setting. Diatribes against unemployment and ensuing poverty are rallying calls for inciting violence. However, in the interests of caution, poverty does not

necessarily lead to conflict, which requires the juxtaposition of a number of factors and conditions.

DRIVERS IN UNEMPLOYMENT

With the exception of underemployment engendered by a scarcity of land, unemployment is a product of the country's inefficient agricultural and livestock-raising sector and social conflict.

Inefficient farming and stock-raising systems. Inefficient farming and stock-raising systems are creating underemployment, with idle workers unable to find off-farm employment or jobs in craft and other industries.

Social conflict. Social conflict creates instability which, in turn, disrupts production systems and marketing channels, destroying jobs and infrastructure. In a rural environment, social conflict disrupts crop production by displacing the local farm population, which is left without work.

The drivers shaping the rural environment function like a system or, in other words, in the form of an interactive unit. It is impossible to analyze all corresponding interactions. The interaction and mutually reinforcing effects of these drivers are complex, making it difficult to establish all causal connections. The next section of the report addresses the issue of what can be done to break the vicious cycle of land shortages–environmental degradation–social conflict–unemployment.

4. Future Challenges

The country faces many challenges, chief among which are the land issue and the need to boost production and productivity, create jobs, control population density, and protect the environment.

RESOLVING THE SOCIAL CONFLICT AND SETTLING LAND DISPUTES

As far as the political elite is concerned, socioeconomic disputes can be resolved by increasing the volume of equitably distributed resources. In rural areas, land has significant social value in that it is not only a means of subsistence but a source of social prestige. In Burundi, access to land can be inherited, purchased, granted by the government, or leased. The Land Code includes provisions with respect to land access and conveyance that are not enforced because of the existence of a parallel traditional system that takes precedence over the law. The 1986 Land Code requires all transactions involving land to be recorded in land deeds but, in practice, very few such transactions are actually recorded. Land ownership is verbally recognized by the extended family and neighbors. In time, the registration of land titles free of any recording fees could alleviate the problem of land disputes between blood relatives.

The new Land Code may help resolve the legal issues in land disputes (property rights), but will not end the battle over resources which, in some cases, is a struggle for survival. Malthusian logic will always prevail where there is no control over population growth. In other words, the only way to resolve the land shortage problem is by reducing population density which, in turn, can be achieved only by cutting the birth rate and/or through emigration to other subregional countries under a regional cooperation agreement. This is a long-term solution to the problem. The development of sources of nonfarm employment can ease pressure on the land (see the Developing Agricultural and Nonagricultural Income-Generating Activities section).

BOOSTING AGRICULTURAL PRODUCTION AND PRODUCTIVITY

To better grasp the current situation in Burundi and opportunities for boosting agricultural production and productivity, we examined studies of 10 Central and East African countries by the Association for Strengthening Agricultural Research in Eastern and Central Africa and the International Food Policy Research Institute.¹³ In conducting the study Strategic Priorities for Agricultural Development and Agricultural Research-for-Development in Eastern and Central

¹³ The countries in question are Burundi, the Democratic Republic of the Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, and Uganda.

Africa, the two organizations established eight profiles or so-called “domains” representing a combination of three factors—namely, agricultural potential, market access, and population density—ranking the countries according to their performance in each of these factors as either “low” or “high.”

Looking at these three factors, as we see it, Burundi has “low” agricultural potential, “low” market access and a “high” population density.

The study concludes, among other things, that *“the greatest potential for agriculture-led growth and poverty reduction in the region ... lies in agricultural subsectors serving domestic and regional markets and not those directed at overseas markets.”* As far as Burundi is concerned, bananas, potatoes, and sweet potatoes are the crops to be given top priority. The study goes on to say that “export commodities will continue to be crucial income earners ... but will not be the answer to the problem of widespread poverty and hunger in the region.”¹⁴

The findings of this study, which we agree with, are pessimistic as far as Burundi is concerned. Burundi has very few opportunities, either in agriculture or elsewhere. It has no competitive advantages whatsoever over Kenya, Uganda, or Tanzania in areas for which there is a growing regionwide demand such as animal products, staple foodstuffs, and fruits and vegetables.

In light of the shortage of land, any improvement in output and productivity will necessitate effective water management and the use of irrigation in wetland areas. The use of selected seeds, crop rotation, and the more widespread use of fertilizer and insecticides would help step up the cultivation of food crops and boost yields. Among other goals, the farming system should endeavor to produce a marketable surplus as a source of household income. Marketing efforts should focus mainly on the local market and on border markets in neighboring countries (Democratic Republic of the Congo and Tanzania). Right now, Burundian exports to other area countries are extremely limited (10,000 tons in 2004), particularly exports of agricultural commodities (see Appendix A, Table A-3).

The reconstituting of animal herds, the use of veterinary services, and better animal nutrition would help boost animal production.

The two prerequisites for boosting production and productivity are land-use reform and support policies (extension services). In the face of the drought conditions and plant diseases that have become more or less chronic in certain Burundian provinces, research by ISABU should focus on drought-resistant crops such as sweet potatoes, cassava, cush-cush, bananas, etc. and the introduction of new crop varieties resistant to common plant diseases.

¹⁴ Association for Strengthening Agricultural Research in Eastern and Central Africa and the International Food Policy Research Institute, *op cit.*, p. 15

DEVELOPING AGRICULTURAL AND NONAGRICULTURAL INCOME-GENERATING ACTIVITIES

Regardless of the effort made to resolve the land problem, the shortage of land has reached such an extreme that the agricultural sector can no longer support the entire population, which means looking for other employment options, both within (agroprocessing industries) and outside the agricultural sector. Since agriculture dominates Burundi's productive sector, any job creation strategy should be grounded in agricultural activities. Employment generation efforts should focus mainly on promoting rural development and encouraging private investment in this sector. There are many different factors which, working together, can help achieve corresponding employment and income targets. Examples include financing, training, infrastructure, expertise, market access, trade policy and productivity. All these factors are important and operate in true systemic fashion, but the top priority should be on skills training. There needs to be good employment and, thus, income generation potential throughout the supply / production value chain. Appendix B shows how to create jobs and generate income in connection with the production of essential oils, for example.

There are also employment and income generation opportunities outside of agriculture, in the informal sector and in microenterprises in agriculture-related areas (the manufacturing of farm implements, fertilizer production, agroprocessing industries, etc.).

CONTROLLING POPULATION DENSITY

The population problem is complicated and tied to certain perfectly rational cultural beliefs. The implementation of population control policies needs to go hand in hand with policies designed to alleviate poverty, reduce income disparities, improve training opportunities (particularly for women), boost employment opportunities for both men and women, provide universal access to modern disease prevention methods and public health programs (particularly water supply and sanitation programs), and improve maternal and child health through proper nutrition to lower child mortality rates. It is not a lack of good sense on the part of the general public that is at the root of the country's population problem. Endemic poverty and a low standard of living provide a good economic rationale for large families and a booming population. Resolving population problems is a long-term undertaking, but certain policies could be implemented as short-term measures. Basically, Burundi could control population growth in four main ways:

- By persuading the population to have smaller families through education and consciousness-raising campaigns mounted in formal structures (schools) and informal structures (adult education) ;
- By distributing contraceptives as part of family planning programs;
- By encouraging or discouraging specific types of behavior through the use of economic incentives or sanctions to force families to have fewer children (for example, a reward system for families with up to a certain number of children or penalties for families with more than a certain number of children).

- By improving the socioeconomic status of women by providing them with jobs outside the home. The existence of income-earning opportunities makes young girls more independent and may encourage them to put off marriage.

Right now, the focus is on family planning programs and consciousness-raising campaigns but, thus far, they have had no visible result.

PROTECTING THE ENVIRONMENT

Right now, the political will to protect the environment exists, but it needs to be translated into visible action. This is reflected in:

- A growing environmental awareness on the part of various stakeholders, particularly in the wake of the creation of the Ministry of Environment and signs of a heightened community awareness of environmental issues, reflected in the establishment of local environmental organizations. The National Environmental Institute and Nature Conservancy¹⁵ has established a participatory management option for parks and nature reserves. Another sign of environmental awareness is the mandatory inclusion of environmental impact assessments in the program and project preparation processes of different environmentally oriented ministries.
- The crafting of sector environmental policies, which has also become common practice since the creation of the Ministry of Environment. Although policy outcomes still leave much to be desired, this is an important step forward in addressing environmental issues.
- The obligation of all donors to include environmental impact assessments in their project and program preparation processes, heightening environmental awareness in the implementation of corresponding projects.
- The signature of international conventions on the environment.
- The drafting of various regulations and pieces of new legislation pertaining to the environment.
- A heightened awareness on the part of the rural population of the need to ease pressure on local ecosystems. In fact, the public is increasingly aware of the fact that its needs for wood cannot be met strictly by harvesting natural forest resources and is instinctively turning to agroforestry practices.
- International cooperation in support of efforts to maintain ecological balances and preserve biodiversity, as reflected by the large numbers of environmental stakeholders, even in the midst of the crisis.

¹⁵ *Institut National de l'Environnement et de la Conservation de la Nature*

5. Conclusion and Recommendations

A study of the drivers shaping conditions in Burundi shows that progress in boosting *food production* has been slow and nowhere near the rate of population growth which, in turn, has tightened food availability. Compounding the problem is a years-long drought which, in the first few months of this year, has already been responsible for a number of fatalities in the country's northern provinces.

Trends in the production of *export crops* (coffee, tea, cotton) have been driven by fluctuations in world market prices, which determine export earnings. In general, production levels for these crops have fallen in the past few years.

The *main constraints* in the agricultural sector are shortages of land and farm inputs (selected seeds, fertilizer, pesticides, etc.) The potential to improve yields is there but is limited. The goal should be to boost agricultural potential and improve market access by reducing population density. Accomplishing this means investing in productivity gains and farm inputs to realize the country's full agricultural potential.

An examination of conditions in the *livestock sector* shows a decline in the size of cattle herds in particular and, to a lesser extent, small-animal herds. This trend is attributable to the crisis, in part, but shortages of pasture and, in general, poor animal nutrition are major structural problems. An intensive livestock-raising system appears to be the best option for improving the performance of Burundi's livestock sector. (The approaches suggested are outlined in the Boosting Agricultural Production and Productivity section.)

The *environment* is seriously degraded, particularly with respect to crop and pasture land, forests, and water resources. An environmental awareness on the part of all government (leaders) as well as rural (operators) stakeholders, particularly an awareness of the link between agriculture and the environment, is an important step toward the implementation of environmental protection programs.

In the face of the shortage of farmland, *unemployment and underemployment* rates among the rural population are running extremely high, making the population vulnerable to different forms of manipulation leading to conflict triggered, among other things, by the monopolization of Burundi's limited resources such as revenues from cash crops and land.

The different drivers shaping Burundi's rural environment—namely land, agriculture and livestock-raising, environment, employment and conflict—are all closely related, with land as their focal point. The negative interaction of these drivers has created a vicious cycle from which, right now, there is no escape.

Although it may be difficult, the negative trends described earlier in the report can be reversed. The recommendations outlined on the following pages are designed to do precisely that. They act on the different drivers, focusing on specific measures capable of producing positive short- and medium-term outcomes with the assistance of the donor community.

RECOMMENDATIONS

The following recommendations sum up proposed responses to the challenges identified in the previous section. They are discussed in order of their feasibility. However, since they involve interrelated drivers working on each other, they are not ranked in order of their importance.

1. Create jobs and generate income for the rural population with a view to reducing poverty

Employment policies and job programs should focus on labor-intensive public works. Short-term policies and programs are, basically, expected to have two types of effects in Burundi. They are expected to rapidly create gainful employment opportunities for the unemployed and to help meet community infrastructure needs. They generally involve infrastructure rehabilitation and/or construction projects (for roads, irrigation systems, low-income housing, school or health facilities, site development and water supply systems, reforestation, the planting of turf grass for soil stabilization and erosion control, the digging of hillside reservoirs for rainwater, etc.). Because these types of works programs generally require unskilled labor, they are targeted at most of the Burundian population. These types of interventions help boost the cash income of program participants for a limited period of time while stimulating the local economy. They are short-term programs and need not be overly costly. The average cost per man-day for ABUTIP programs, for example, is US\$1.52. ABUTIP operates in urban areas, which explains the relatively high program cost per man-day. In rural areas, program costs would range from US\$0.50 to US\$1.00 per man-day. A budget of US\$5.5 million could create anywhere from 5.5 million to 11 million man-days of work, depending on the daily wage paid to program participants.

The establishment of job training centers and the backstopping of private enterprises are the only approaches capable of producing any long-term effects.

This recommendation is targeted at the Burundian government but requires assistance from the international community.

2. Resolve land disputes

The short-term approach to the settlement of land disputes involves the establishment of conciliation and legal safeguard mechanisms. This requires:

- Establishment of conciliation mechanisms. In the past, social harmony depended on the traditional role played by the *Bashingantahe* (a body of men renowned for their sense of truth, justice, and responsibility vested with certain social, political, and judicial powers), which is cryptically alluded to in municipal law. More specifically, municipal law recognizes the right of the *Bashingantahe* to engage in arbitration, mediation, and conciliation and settle local disputes, operating side by side with the local hillside village council.¹⁶ This traditional mechanism has important potential as a way of relieving the backlog of court cases involving land disputes. The institution itself still has credibility, subject to the correction of certain abuses committed by some of its members.
- Issuance of title deeds for all rural land holdings.
- Settlement of disputes between refugees, displaced persons, and occupants of properties abandoned by these refugee and displaced populations. In 2000, the Arusha Agreement reaffirmed the right of so-called “*sinistrés*” (the term used in the agreement to denote displaced persons and exiles) to reclaim their land (Protocol 4, Chapter 1, Article 4(d) and Protocol 4, Chapter 1, Article 8(b) or to be given top priority for grants of government land (Protocol 4, Chapter 1, Article 8(e)).
- Establishment of the exact boundaries of public lands and surveys of government-owned lands to facilitate the resettlement of landless refugees and displaced persons or those unable to return to their homes.
- Resettlement of displaced persons and returnees. After several years of absence, displaced persons and returnees need to reclaim their land and will require some form of economic adjustment assistance. Otherwise, the country runs the risk of creating a new class of frustrated farmers and of fostering social conflict in hillside village communities between returnees displaced or exiled for security reasons and those remaining behind. Assistance for the economic mainstreaming of displaced persons and returnees would take the form of distributions of seeds for the planting of their first crops. Until the harvest is brought in, they could be included in the labor-intensive public works program proposed above. Information activities are a must to avoid a negative reaction from the local hill people. It is important to prevent the remaining population from perceiving these displaced persons and returnees as being in a privileged position. Thus, the yardstick for this purpose would be the living conditions of the average peasant farmer in a typical hillside village.
- As for the problem of the shortage of land, the international community can help Burundi negotiate resettlement agreements with large countries with sizeable tracts of vacant land relatively close to the Burundi border. The country had this same type of policy back in the 1970s, promoting emigration to Gabon.

This recommendation is targeted specifically at the government.

¹⁶ Municipal Government Act, Article 47, section 2.

3. Reduce inequities in access to land and income

As underscored earlier in the report, there are virtually no large land owners left in Burundi. For the most part, the only unoccupied lands belong to the government. In 2001, the government took an inventory of all vacant lands, coming up with a total of 617 tracts of land covering an aggregate area of 141,266 hectares.¹⁷ These unoccupied lands should be allotted to landless *Batwa*¹⁸ and to returnees and displaced persons unable to reclaim their former land holdings. The international community can help Burundi by financing labor-intensive public works programs in which top priority is given to finding jobs for those losing their land to returning refugees and/or displaced persons reclaiming their ownership rights.

The issue of the distribution of farm income (mainly revenues from coffee, tea, and cotton crops) needs to be revisited. The reform program envisaged for the coffee industry is a step in the right direction. The sector development strategy has two main thrusts: (1) the complete deregulation of the coffee industry; and (2) the privatization of government holdings throughout the entire value chain. This reform process is designed to help the coffee industry adapt to fluctuations in world market prices by strengthening its regulatory framework, promoting competition and efficiency, and boosting productivity and farmers' income.

As part of the deregulation process, coffee farmers are beginning to band together into organizations for the collection of green coffee beans. Why should they not also manage coffee washing stations themselves? Producer prices for coffee could rise, with the government no longer setting farm-gate prices, effective as of this season. Now, prices are set by corresponding stakeholders, namely by coffee growers. Farm-gate prices for tea and cotton should also be adjusted upwards. The approach used in the coffee sector could serve as a model for other sectors.

This recommendation is targeted at the government as the owner of these industries.

4. Protect the environment in the best interests of agriculture

The environmental protection measures implemented by the colonial government based on regulation and coercion produced good results, including the mandatory planting of trees, the laying out of hillside reservoirs for rainwater, etc. With independence, these coercive reforestation and erosion control measures were relaxed, eventually resulting in the current state of affairs. These coercive methods could be replaced by participatory approaches to natural resource management.

There is a pressing need to restore the forest cover in much of Burundi (through reforestation activities under labor-intensive public works programs, the restoration of State-owned forests with the help of these programs, the rehabilitation of private forest plantations by corresponding owners with donor assistance for the purchasing of seedlings) and reinstitute inexpensive erosion-control measures such as the digging of hillside reservoirs for the catchment of rainwater, the planting of turf grass, etc.

¹⁷ Final report on the inventory of public lands in Burundi, March – October 2001, page 7.

¹⁸ The *Batwa* now have a sedentary lifestyle.

Capacity-building efforts at the Ministry of Land Management, Tourism, and Environment and related agencies such as the National Environmental Institute and Nature Conservancy (INECN) are also recommended.

This recommendation is targeted at the public sector, to be implemented with donor assistance in the form of capacity-building services and physical aid.

5. Develop intensive farming and stock-raising systems and strengthen markets for agricultural products

The country could develop intensive farming and stock-raising systems through the use of selected inputs (seeds, fertilizer, farm implements):

Recommendations for the government, to be implemented with the assistance of the international community

- Train the population engaged in farming and stock-raising (through extension services). Provide extension agents with research data from the Burundian Agricultural Research Institute for dissemination to the general public with a view to realizing the full potential of different types of crops and livestock. Outreach services for farmers can operate as a conflict resolution mechanism by providing opportunities for members of different ethnic groups to work together in establishing seed beds or nurseries, for example. This is an opportunity for engaging in dialogue as the path to reconciliation.
- Revitalize regional cooperation, capitalizing on opportunities in neighboring countries in the framework of the Economic Community of Great Lakes Countries (Congo, Rwanda) and join new subregional organizations such as the East African Community to gain access to markets in these countries.

Recommendations for the private sector

- Develop local markets for agricultural products, as well as markets in neighboring countries by improving communications infrastructure and access to market information.
- Expand processing and storage facilities for farm produce.
- Improve the quality of export crops (coffee, tea, cotton, vegetables), diversify export crops (to include essential oils, for example) and identify high-growth market niches in countries with high purchasing power.

GOVERNMENT CAPACITY FOR THE IMPLEMENTATION OF PROPOSED RECOMMENDATIONS

The government does not have the technical and financial capacity to implement all these recommendations.

From a technical standpoint, it lacks human resources to implement recommendations with regard to the development of agriculture, livestock-raising, and markets for agricultural products. It also lacks needed funding. There is a particular need for technical assistance services for corresponding research work.

Technically speaking, the recommendations with regard to job creation (labor-intensive public works programs), environmental protection, the settlement of land disputes, and the reduction of inequities in access to land and revenues from cash crops could be implemented by the Burundian government, but require funding that the government simply does not have at this point. Thus, assistance from the international community is absolutely essential.

The implementation of these recommendations could be hampered by corruption, particularly in the case of recommendations involving resource management (such as the allocation of jobs under labor-intensive public works programs, government land grants and market allocation schemes for agricultural products (as for sugar) based on subjective criteria, and favoritism). All such risks are avoidable provided the government has the will to combat corruption.

The magnitude of Burundi's socioeconomic problems is such that any effort to reverse current negative trends—translating into a vicious cycle of land shortages, environmental degradation, unemployment, social conflict and land disputes—will require replacing the current population-driven development model based on subsistence farming and a handful of cash crops by an intensive rural development model, with all that this implies in terms of investments in various types of inputs. This is the challenge facing Burundi.

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Appendix A. Data Tables

Figure A-1
Trends in Food Crop Production 1972–2003 (in tons)

| Crops | 1972 | 1982 | 1992 | 2002 | 2003 |
|----------------|------------|-----------|-----------|-----------|-----------|
| Maize (corn) | 184,140 | 144,000 | 178,000 | 126,799 | 120,575 |
| Rice (paddy) | 4,475 | 9,000 | 41,000 | 62,648 | 61,256 |
| Sorghum | 33,925 | 52,000 | 67,000 | 73,246 | 71,471 |
| Eleusine grass | 8,820 | 10,000 | 14,000 | 10,706 | 10,597 |
| Wheat | 8,000 | 6,000 | 9,000 | 8,290 | 8,092 |
| Beans | 349,860 | 290,000 | 346,000 | 245,289 | 229,230 |
| Green peas | | 29,000 | 37,000 | 33,330 | 33,091 |
| Soybeans | | 3,000 | | | |
| Groundnuts | 21,450 | | | | |
| Potatoes | 98,000 | 35,000 | 46,000 | 27,994 | 26,338 |
| Sweet potatoes | 655,000 | 490,000 | 701,000 | 833,470 | 807,940 |
| Cassava | 559,090 | 444,000 | 597,000 | 749,938 | 736,012 |
| Cush-cush | 43,000 | 98,000 | 135,000 | 85,705 | 61,136 |
| Yams | | 6,000 | 8,000 | 9,924 | 9,912 |
| Bananas | 116,400 | 1,288,000 | 1,645,000 | 1,602,979 | 1,550,029 |
| TOTAL | 13,137,000 | 2,915,000 | 3,824,000 | 3,870,318 | 3,725,697 |

SOURCE: Ministry of Agriculture, Monitoring and Evaluation Department.

Figure A-2
Trends in Export Crop Production 1972–2004, in tons

| Crop year | Green Coffee | Cotton Seed | Dry Tea | Sugar | Quinquine Bark |
|-----------|--------------|-------------|---------|--------|----------------|
| 1972/1973 | 19,403 | 4,674 | 486 | -- | -- |
| 1982/1983 | 20,269 | 5,701 | 2,178 | -- | -- |
| 1991/1992 | 34,190.00 | 5,365 | 5,921 | 14,384 | -- |
| 1992/1993 | 37,094.46 | 8,813 | 5,523 | 16,925 | -- |
| 1993/1994 | 22,867.70 | 4,915 | 6,864 | 15,046 | -- |
| 1994/1995 | 41,226.35 | 4,593 | 6,970 | 11,951 | -- |
| 1995/1996 | 25,129.52 | 2,604 | 5,716 | 15,299 | -- |
| 1996/1997 | 26,260.50 | 2,382 | 4,189 | 17,754 | -- |
| 1997/1998 | 19,976.58 | 3,232 | 6,500 | 19,582 | -- |
| 1998/1999 | 17,035.14 | 2,580 | 7,000 | 21,703 | -- |
| 1999/2000 | 28,716.00 | 2,585 | 7,118 | 20,794 | 50 |
| 2000/2001 | 18,503.00 | 2,901 | 9,009 | 18,308 | 50 |
| 2001/2002 | 16,122.0 | 2,735 | 6,765 | 18,177 | 97 |
| 2002/2003 | 36,155 | 3,063 | 6,643 | 17,645 | 50 |
| /2004 | 6,000.00 | 3,512 | 7,380 | 20,259 | 120 |

SOURCE: Burundi Coffee Board, Cotton Management Company, Burundi Tea Board, Moso Sugar Company, and Central Bank

Figure A-3

Exports, by Country of Destination and by Product, 2004, tons

| Products | Dem. Rep. of Congo | Kenya | Uganda | Rwanda | Tanzania | Total |
|--|--------------------------|-------|--------|--------|----------|--------|
| Live plants and flower products | – | – | – | – | – | 0 |
| Vegetables | – | – | – | – | – | 0 |
| Fruits | – | – | – | – | – | 0 |
| Coffee | – | – | 45 | – | – | 45 |
| Tea | – | – | – | – | – | 0 |
| Rice straw | – | – | – | 40 | – | 40 |
| Cassava meal | – | – | – | – | – | 0 |
| Seeds and fruits (oil-bearing) | – | – | – | – | – | 0 |
| Animal or vegetable oils and fats | – | – | – | 772 | – | 772 |
| Sugar and sweets | 275 | – | – | 5,328 | 270 | 5,873 |
| Carbonated or mineral water | – | – | – | – | – | 0 |
| Beer | 266 | – | – | 2,244 | 131 | 2,641 |
| Partially or fully stripped tobacco leaves | – | – | 149 | 1 | – | 150 |
| Minerals | – | – | – | 48 | – | 48 |
| Skins and hides | – | 189 | – | 34 | – | 223 |
| Wood | – | – | – | – | – | 0 |
| Cotton | – | – | – | – | – | 0 |
| Cotton fabrics | – | – | – | 17 | – | 17 |
| Misc. | 10 | 12 | – | 173 | 13 | 208 |
| Total | 551 | 201 | 194 | 8,657 | 414 | 10,017 |

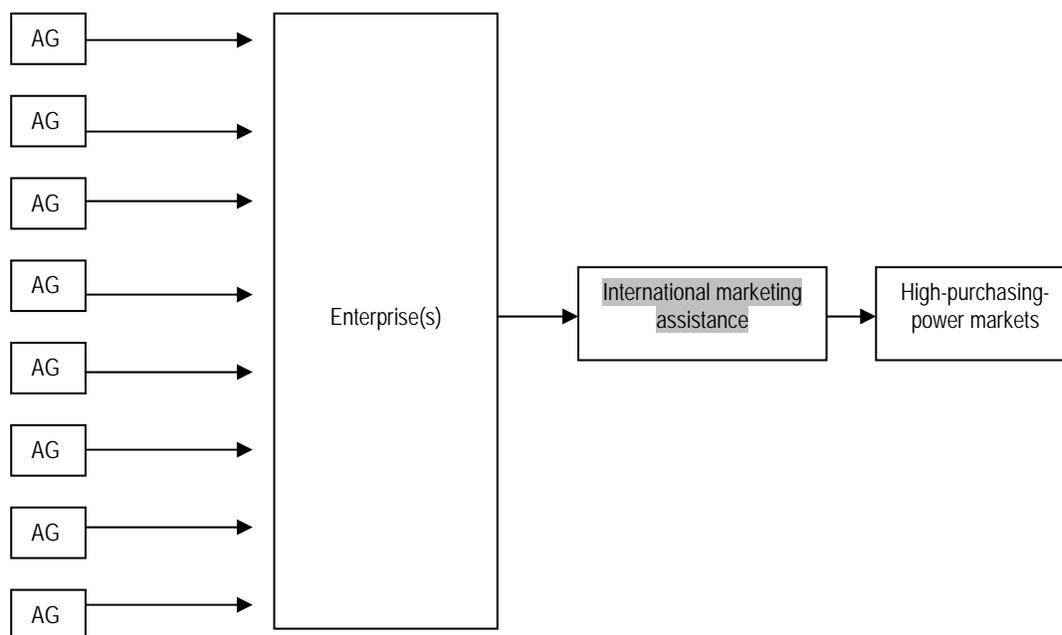
SOURCE: Central Bank of Burundi⁹⁰

Appendix B. Production and Marketing Organization Scheme

There is a market for essential oils in high purchasing power countries. Burundi needs to be competitive on these markets by offering a high-quality product complying with international standards. Moreover, the essential oil-producing enterprise needs to have state-of-the-art technology. The economic agents or, in other words, peasant farmers banding together into organizations subject to supervision and regulation and equipped with all necessary inputs and factors of production as outlined in Figure B-1, produce crops and sell them to one or more plants or factories. Since the essential oils market, like other markets in industrialized countries, is hard to penetrate, the plants or factories are forced to contract the services of an internationally renowned organization to market the product. There is no income and employment generation at the factory level, since modern industries are capital intensive. The employment and income generation potential lies elsewhere—at the level of the economic agents or peasant farmers selling raw materials to the plant or factory.

Figure B-1

Production and Marketing Organization Scheme for Income-generating Products, from the Economic Agent to the World Market (Example: Essential Oils, Cut Flowers)



AG= Economic agent (peasant farmer or farmers' organization)